UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,812	03/18/2004	Lee Begeja	2003-0059 (ATT.0180000)	5880

26652   7590   06/29/2009
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EXAMINER
HAN, QI

ART UNIT	PAPER NUMBER
2626	

MAIL DATE	DELIVERY MODE
06/29/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 April 2009*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 17-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 17-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Amendment

2.   This communication is responsive to the applicant's amendment dated 04/06/2009. The applicant(s) amended claims 1 and 17 (see the amendment: pages 2-3).

The examiner withdrew the previous claim rejection under 35 USC 101, because the applicant amended the corresponding claim(s).

Response to Arguments

3.   Applicant's arguments with respect to the claim rejection under 35 USC 103, have been fully considered but they are not persuasive.

In response to applicant's arguments regarding the prior art rejection (applied to claims 1 and 17) that combined teachings of Arai and Attwater do not teach "generating call type but use existing call types" and the generated/clustered "grammar fragments including call-types" (Remarks: page 5-8), the examiner respectfully disagrees with the applicant's arguments and has a different view of the prior art teachings and the claim interpretations.

It is noted that, by reviewing the cited references, claims and previous office action, the previous examiner's arguments is still applicable, as least partially, to the response to the new

applicant's arguments. It also noted that the issue(s) that does not covered by the following

examiner's response is directed to the previous examiner's response filed on 01/05/2009.

It is should be pointed out the rejection is based on the broadest reasonable interpretation

of the claim(s) in light of the specification, so that the argued/claimed limitation of "call-type"

can be broadly read on any clustered/classified classes regarding routing objective (real phone

call or the related logical call), call-type classifier, or call-type itself. In this case, Arai discloses

'clustering phrases into grammar fragments' and 'to generate a collection of grammar fragments'

(col. 2, lines 13-25) which represent 'meaningful phrase clusters' relating/regarding call types,

tasks or routing objectives (col. 1, line 60 to col. 2, line 5; col. 3, lines 54-60; col. 9, lines 4-23).

Thus, generating the grammar fragments is properly read on the claimed generating call-types,

since the grammar fragments are or at least include call-types (also see col. 8, lines 32-35).

Further, it can be seen that Arai discloses using call-type (narrowed scope referring to some key

words) itself based on the related probability (Fig.2), which means the call-type is a statistical

model that needs to be trained before using it. Furthermore, Arai discloses, in the training

transcriptions, 'call-types **assigned** to transcriptions in which the fragment is observed' (col. 9,

lines 4-23) and 'each such utterance is **labeled** with its associated routing objective (i.e. call-

type)' (col. 9, lines 4-23), wherein the assigning and/or labeling process can also be read on the

claimed generating call-types. One of ordinary skill in the art would have recognized that in the

above assigning/labeling process, if there is no any or a corresponding class (call-type, routing

objective, or task) registered in the system, the system or human expert would assign (generate)

one for the transcription or utterance; if there is a corresponding class (existing one), the system

or human expert would use it (existing one). In addition, it is noted that a speech recognition

system with statistical models always needs an initial process (from scratch) to assign, label or

generate the corresponding classes or models (such as call-type in this case) for the

corresponding training utterance or transcription, so that the argument suggesting that Arai can

only use existing call types lacks sufficient evidence and not persuasive.

For above reasons, the applicant's arguments are not persuasive and the claim rejection is

sustained.

Claim Rejections - 35 USC § 103

4.   Claims 1-3, 5-6, 8-11, 13-14 and 16-22 are rejected under 35 U.S.C. 103(a) as being

unpatentable over ARAI (US 6,173,261) in view of ATTWATER et al. (US 6,839,671)

hereinafter referenced as ATTWATER.

As per **claim 1,** ARAI discloses 'grammar fragment acquisition using syntactic and

semantic clustering' (title) 'for recognizing and understanding fluently spoken languages'

(abstract), comprising:

"collecting a plurality of utterances" (Fig. 9 and col. 9, lines 14-8, 'database (collection)

of a large number of utterances (collected plurality of utterances)');

"generating a plurality of call types, each generated call type being based on a first set of

utterances selected from the collected plurality of utterances", (col. 2, lines 13-35, 'clustering

phrases into grammar fragments' that are associated to the utterances, 'generate a collection of

grammar fragments each representing a set of syntactically and semantically similar phrases' and

used to 'determine a call classification (a call type)'; Fig. 9 and col. 9, line 1 to col. 10, line 45,

'a set of candidate phrases (including call types) having a probabilistic relationship with one or

more of the set of predetermined routing objectives with which the input speech utterances are

associated', 'call-type classification (generating call types)'; Fig. 2, also showing call types

having/associating the training transcriptions (corresponding to the first set of utterances); also

see the examiner's arguments stated in the above section of "Response to Arguments");

"generating a first natural language understanding model using call type information

contained within said first set of utterances"(col. 2, lines 6-9 and 20-35, 'to utilize these grammar

fragments (associating corresponding utterances) in language models (interpreted as natural

language understanding models) for both speech recognition and understanding', 'salient

sequences of these fragments may then be automatically acquired, which are then exploited by a

spoken understanding module to determine a call classification'; Figs. 11a-11c and col.10, lines

30-45, 'as a consequence of this expansion, a fully expanded salient fragment network (also

corresponding to the first natural language understanding model) is obtained (generated)');

"testing said first natural language understanding model" (col. 9, lines 61-67, 'recognition

language model (natural language understanding model)', 'the training transcription contained

7,800 sentences while the test transcription contained 1000 sentences', which implies testing the

language model);

Even though ARAI discloses that the grammar fragments formed from candidates

phrases that generated from the training transcription (based on the testing) can be sorted based

on call types (col. 6, lines 39-53), ARAI does not expressly disclose "**modifying** said plurality of

call types based on said testing" and "**generating a second** natural language understanding

model using said modified plurality of call types".   However, the feature is well known in the art

as evidenced by ATTWATER who discloses 'learning of dialogue states and language model of

spoken information system' (title) for creating 'a dialog model' using a training corpus of

example human-human dialogues (abstract), comprising 'a natural language call steering system'

in that 'the received speech utterance is analysed by the recognizer with reference to a language

model' and using 'semantic model to form a semantic classification' that provides classifiers

according to a predefined set of meanings (corresponding to call types) (col. 3, line 60 to col. 4,

line 14), and teaches that 'the sentences in supervised training corpus 42 are clustered using

clustering algorithm' and 'clusters thus generated are manually checked' in which the

words/phrases can be deleted or substituted (modified) in forming a cluster (col. 6, lines 1-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention

was made to recognize that supervised training with manually checked clusters would provide

capability of modifying the clusters/classes for the transcribed data so as to form a different

language model, and to modify ARAI by combining the feature of using a candidate set of

grammar fragments associating the clustered call-types in the training transcription disclosed by

ARAI (col. 3, lines 1-60) and the feature of using supervised training and/or manually checking

(or transcribing) clusters with modifying capabilities, such as deleting or substituting, as taught

by ATTWATER (col. 6, lines 1-22), so that the call type of the candidate fragments associating

the utterances/transcription can be manually modified and another fully expanded salient

fragment network (second natural language understanding model) can be generated, for the

purpose (motivation) of generating more accurate transcriptions and/or improving call-type

classification performance for the system (ATTWATER: col. 6, lines 30-31; ARAI: col. 10, lines

21-22).

As per **claim 2** (depending on claim 1), ARAI in view of ATTWATER further discloses "generating an annotation guide using a second set of utterances which is a subset of said first set of utterances" (ATTWATER: Fig. 3 and col. 5, lines 13-14, 'nodes… have been annotated with operator utterance'; col. 11, lines 33-35, 'each call in the corpus can be annotated according to the cluster of each operator utterance in the call', wherein the content of labels 26 in Fig.3, such as 'greeting', can be reasonably interpreted as generated annotation guide as claimed; ARAI: Fig.11C also suggests that the utterances corresponding to phrase 'collect call' (or 'collect phone call') is a subset of the utterances of the consequence expansion (the model), so that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings from ARAI and ATTWATER by providing generated annotation (annotation guide) using a subset of utterances of the consequence expansion, for the purpose (motivation) of generating more accurate transcriptions and/or improving call-type classification performance for the system (ATTWATER: col. 6, lines 30-31; ARAI: col. 10, lines 21-22)).

As per **claim 3** (depending on claim 1), ARAI in view of ATTWATER further discloses "generating call type data using at least **one of** data clustering, relevance feedback, string searching, data mining, and active learning tools" (ARAI: Fig. 9, 'grammar fragment (data) clustering'; ATTWATER: col. 5, lines 61-65, 'dynamic programming (DP) match (string searching)').

As per **claim 5** (depending on claim 1), ARAI in view of ATTWATER further discloses "said first natural language understanding model is trained using a first text file containing utterances contained within said first set of utterances and a second text file containing call types assigned to said utterances in said first text file" (ARAI: Fig. 9 and col. 9, line 4 to col. 10, line

45, wherein the 'database' with labeled utterances and training transcriptions necessarily include

text file/table (first text file) linking (containing) the corresponding utterances, and the phases

(text) classified with call types are also necessarily stored in a file or table (second text file) and

linked (assigned) to the corresponding utterances; also see Figs. 7A-7C and 11A-11C).

As per **claim 6** (depending on claim 1), ARAI in view of ATTWATER further discloses

"said natural language understanding model is tested using a subset of said first set of utterances"

(ARAI: Fig. 9, 'test speech utterance' and 'input speech').

As per **claim 8** (depending on claim 1), ARAI in view of ATTWATER further discloses

"said first natural language understanding model is created prior to an annotation guide"

(ATTWATER: Fig. 3, wherein the content of labels 26, such as 'greeting', is interpreted as

generated annotation guide; col. 11, lines 33-35, 'once the sentences in the training database

have been clustered …each call in the corpus can be annotated **according to the cluster** of each

operator utterance in the call', which suggests the model is created prior to the annotation

(guide)).

As per **claims 17-20**, the rejection is based on the same reason described for claims 1-2

and 5-6, because it also reads on the limitations of claims 1-2 and 5-6 respectively.

5.   Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over ARAI in

view of ATTWATER as applied to claim 1, and further in view of MAES et al. (US

2003/0088421) hereinafter referenced as MAES.

As per **claim 4** (depending on claim 3), even though ARAI in view of ATTWATER

discloses generating call types, as stated above, ARAI in view of ATTWATER does not

expressly disclose "using a graphical user interface (GUI)." However, the feature is well known

in the art as evidenced by MAES who discloses 'application that supports multi-modal',

'conversational applications' utilizing 'NLU (natural language understanding)', 'multi-modal

interactive dialog comprises modalities such as speech, visual (GUI)…and a combination of such

modalities (e.g. speech and GUI)' (p(paragraph)46); and 'multi-modal browser application

comprise a GUI browser' (p73). Therefore, it would have been obvious to one of ordinary skill

in the art at the time the invention was made to modify ARAI in view of ATTWATER by

combining the feature of generating call types as stated for claims 1 and 3, with feature of

supporting multi-modal applications including using GUI, as taught by MAES, for the purpose

(motivation) of better disambiguating and understanding the user's intention and/or displaying

the related presenting and updating information (MAES: p46, p244).

As per **claim 7** (depending on claim 1), the rejection is based on the same reason

described for claim 4, because the claim recites the same or similar limitation(s) as claim 4.

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR

1.136(a) will be calculated from the mailing date of the advisory action. In no event, however,

will the statutory period for reply expire later than SIX MONTHS from the mailing date of this

final action.

7.   Please address mail to be delivered by the United States Postal Service (USPS) as
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>   Mail Stop ____
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Effective January 14, 2005, except correspondence for Maintenance Fee payments,
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Any inquiry concerning this communication or earlier communications from the
examiner should be directed to QI HAN whose telephone number is (571)272-7604. The
examiner can normally be reached on M-TH:9:00-19:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Richemond Dorvil can be reached on (571)-272-7602. The fax phone number for the
organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QH/qh
June 25, 2009
/QI HAN/
Primary Examiner, Art Unit 2626